

# **Exhibit 5**

This exhibit reports the result of the application of the Newspaper text extraction method to three URLs from motherjones.com and three URLs from revealnews.org that are listed in the OpenWebText training set described in Plaintiff's Complaint. A data scientist employed by Plaintiff's counsel followed the text extraction steps described by OpenAI in the paper Alec Radford et al., Language Models are Unsupervised Multitask Learners, 3 [https://cdn.openai.com/better-language-models/language\\_models\\_are\\_unsupervised\\_multitask\\_learners.pdf](https://cdn.openai.com/better-language-models/language_models_are_unsupervised_multitask_learners.pdf). First, the data scientist downloaded the content of the URLs in ."html" form. He confirmed that each article, as downloaded, contained author, title, copyright notice, and terms of use information. Second, he applied the Newspaper code to the downloaded article. Based on the assumption that OpenAI desired the Newspaper extraction method to be consistent with the Dragnet extraction method, and the fact that the Dragnet extraction method does not extract author and title information, he used a version of the Newspaper code designed not to extract author and title information. The results are reproduced below. Each sample begins with the URL of the webpage followed by the entire content of the copy after the application of the Newspaper code.

**Mother Jones Example 1:** <https://www.motherjones.com/politics/2011/08/gary-johnson-for-president/>

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The race for the Republican presidential nomination does not appear to be going well for Gary Johnson. According to the most recent Zogby poll, the libertarian former two-term New Mexico governor, climber of Mount Everest, and consumer of medical marijuana is polling at 1 percent among likely GOP presidential primary voters nationwide. That's 24 points behind front-runner Rep. Michele Bachmann (R-Minn.); 10 points behind fellow libertarian Rep. Ron Paul (R-Texas); and 1 point behind former Speaker Newt Gingrich, who at this point is basically just trying to sell more copies of his books. Johnson is trailing Fred Karger, the gay former dark-arts operative who is running solely for the sake of hounding Mitt Romney, by 1 point.

But if you ask Gary Johnson, he is exactly where he wants to be. "The vantage point that I have is the only vantage point that I've ever had in politics, which is being last," Johnson explained on Friday following an address to the National Conference of College Republicans in downtown Washington. "I've run for two political offices in my life: governor of New Mexico, and reelection as governor of New Mexico. This was just where I was in New Mexico."

Johnson was in town last week for some fundraising and glad-handing. He met with South Carolina Sen. Jim DeMint, the tea party's best friend in Congress, on Thursday, and spoke to the College Republicans the next morning. But despite being excluded from the first New Hampshire presidential debate, Johnson believes things are starting to look up.

"You need to understand yourself whether or not you have momentum," Johnson says. "If you can't ascertain that, why, that's kind of the key to life. You can't kid yourself: Either you have it, or you don't have it. And exceeding expectations would be exceeding what people are expecting of you." And does Johnson have momentum? "Oh, yeah. I'm not expecting anyone to know that, and I don't want to sound silly for saying that's something that I have when others wouldn't acknowledge it at all, but again this is very corollary to having run for governor of New Mexico. The primary was in June of 1994. In February they did a poll in New Mexico, asking who would you vote for on the Republican ticket? And I got 2 percent of the votes. We were ecstatic." Johnson's not sure what those expectations will be, but he suggests that somewhere in the top four in libertarian New Hampshire would be a start. His plan is to focus all of his energy on the Granite State for the next 6 1/2 months, skipping, for the most part, Iowa's first-in-the-nation caucuses.

It's a war of attrition. "There are 128 candidates on the Republican side of the ticket right now," Johnson says, fudging the numbers just a tad—and no one else is talking like him. It's only a matter of time before people figure that out.

"You need to understand yourself whether or not you have momentum. If you can't ascertain that, why, that's kind of the key to life."

Johnson's political views overlap with Republicans and Democrats in a way that makes him an imprecise fit for either—he's mostly pro-choice (except for late-term abortions) and anti-war (unless we're being attacked); he'd also like cut entitlement spending by about 40 percent in the short term and eliminate gun regulations. And then there's the economy. While Romney has stayed noticeably silent on the debt ceiling, Johnson is taking a hardline approach: "I would not raise the debt ceiling. I think, you know for all the talk about balancing the budget and for all the talk about not printing money, this isn't a mechanism to make that happen. And I do not want to downplay the problems associated with not raising the debt ceiling, but I just think that those problems will end up paling in comparing with the monetary collapse of this country."

Johnson's fear, ultimately, is that the United States is careening toward a full-scale monetary collapse that will make the consequences of not raising the debt ceiling seem trivial. So what exactly would that collapse look like? Are we talking survival seed banks? Yes. "That's ultimately what you're looking at. What it looks like is needing a wheelbarrow full of money to buy a loaf of bread." He offers to show me the Zimbabwean million-dollar bill he keeps in pocket at all times. "The monetary collapse is when the United States steps in and prints money to cover their entire obligation. Recently that number has been as high as 70 percent, printing money. It's not a great outlook, and to me it's just the writing on the wall." If you imagine America turning into some sort of combination of The Hunger Games and Weimar Germany, slashing Social Security by 40 percent, as Johnson proposes, suddenly doesn't seem like such a big deal.

The governor has a knack for spin that's requisite for any candidate for higher office, but he's also got less of a filter, and is noticeably exasperated at some his competitors' antics. For instance, he thinks Herman Cain's fixation on the threat of Islamic Shariah law—and perhaps Herman Cain himself—is a waste of time. "I don't see it happening," he says. "I've never seen or smelled a whiff of it. It's a nonexistent issue as far as I'm concerned. And when Herman Cain answers the first question at the South Carolina debate about what he would do in Iraq and Afghanistan by saying he would consult with his advisers, gosh." Ditto for the party's focus on social issues—the Iowa Family Leader's anti-gay-marriage pledge, he says, "is the reason why the world doesn't like Republicans." I asked about the rise of China, which has prompted some tea partiers, including Rep. Allen West (R-Fla.), to call for an arms race. "When people understand that the United States spends 52 cents out of the worldwide dollar on military spending and that China spends 9 cents, what arms race are we gonna engage them in? I mean really, is China a threat? No, they're not."

The Iowa Family Leader's anti-gay-marriage pledge, Johnson says, "is the reason why the world doesn't like Republicans."

While Johnson says he respects Texas Gov. Rick Perry, a likely 2012 foe, he says America's not ready for another Texas governor and he doesn't think Perry's August 4th prayer rally is such a great idea. "I think events like that alienate a whole lot of people that don't have to be alienated. If it's a personal kind of situation that I'm leading by example holding this prayer vigil, that's one thing, but if it's somehow political, I don't think people really like Republicans who are doing that publicly, linking that to public policy."

As for his support for marijuana legalization, the issue that defined his second term as governor (when Drug Czar Barry McCaffrey called him “anathema to America’s parents”), Johnson isn’t backing down. “We’re two years away from being at a national statistical tipping point,” he says. “So this is the kind of an issue that, and I’m just gonna state the obvious, does really well when people talk about it. The more information that goes along with this issue, the better it does.” (Two years would of course push the tipping point beyond the November election). That support for legalization echoes the larger philosophy he’s basing his candidacy on:

I wish the Republican party would become known as the party of choice. That very simply you could identify where a Republican would come down on any issue as, well, Republicans are always going to support your ability as an individual to choose, whether it be education, whether it be what it is you eat or drink, whether it’s what you put in your body or don’t put in your body, how tax dollars get spent.

Although he doesn’t think anyone else in the GOP field is presidential material, Johnson says he won’t consider voting for Obama, and he’s not entertaining the idea of running as an independent or on a third-party ticket (as Paul once did). “Absolutely not. The idea here is to win, and I don’t win as a third-party candidate. The only candidate that comes to mind that might be a formidable role in a third-party role would be somebody like [New York City Mayor Michael] Bloomberg, who could put a kajillion dollars of their money into doing that.” And anyway, he’s got a pretty good backup plan if, as the polls suggest, he falls flat in New Hampshire.

“I’ll go back to living north of Taos. I live there because the skiing there is as good as anywhere on the planet and that’s my passion. So I’ll just go back to adventuring and athletics.”

Adventuring is Johnson’s term for various pursuits, including mountaineering (up Mount Everest in 2003) and paragliding (which left him severely injured in 2005 and led him to a three-year trial run of medical marijuana). I asked him about his hometown’s other claim to fame: a paranormal phenomenon known as the Taos hum—a low pitched drone that feels, as one Taos resident once told me, “like being able to hear the mountains.” Does Johnson feel The Hum?

“Oh totally. All the time!” He clarifies, at this point, that he’s being tongue in check, and not simply off his rocker. But then he starts to hum loudly. “Have I ever heard it? Yes.”

**Mother Jones Example 2:** <https://www.motherjones.com/politics/2011/08/96-year-old-foreclosure-ocwen/>

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There is a term of art that was often used during the mortgage boom: “I’ll be gone, you’ll be gone,” or “IBGYBG.” In the mortgage business, it meant that however bad or risky or outright fraudulent a mortgage was, the person who originated it didn’t have to worry—he’d have sold it and moved on long before the borrower was the wiser. The people to whom broker sold the mortgage wouldn’t be held responsible, either—after all, they weren’t responsible for the fraud.

Lillie Mae Washington, who is 96 and lives in West Los Angeles, knows all too much about IBGYBG. Since September 2008, when Washington first sued her mortgage servicer, lender, escrow agent, and others for mortgage fraud, she has been trapped in a legal hell. She has represented herself, been represented pro bono, and now pays a lawyer to handle her case. The suit has been handled by at least seven judges, and the docket runs 104 documents long in federal court alone.

In all that time, no one that Washington has sued has argued that her mortgage was entirely by-the-book. It’s just that no one cares that it probably wasn’t.

That includes Ocwen, Washington’s mortgage servicer, which she says has been trying for over a year to evict her from the home where she has lived for nearly four decades. Washington paid Ocwen—a giant company that services hundreds of thousands of mortgages in all 50 states, often on behalf of big Wall Street banks that hold the mortgages—as long as she could afford to, but the payments were more than three times higher than what she expected when she signed the mortgage documents. A judge’s mediation order temporarily stopped Washington from being kicked out late last month, but her lawyer is far from confident that she won’t be asked to leave again.

Many of the original defendants in Washington’s case are now either insolvent or out of business—in short, they’re gone. But the documents in Washington’s case make it clear that the defendants believe they can’t be held responsible for fraud at mortgage origination. Mitch Abdallah, Washington’s latest lawyer, doesn’t see it that way. “Once you’re responsible for a bad act,” he says, “you can’t wash your hands of the taint by simply signing the dirty document to someone else.”

“At this stage in life we’re not supposed to have this happening,” Washington told me by phone last Friday. “At this stage in life there should not be all this going on.”

Washington’s story starts the way many similar tales of alleged mortgage fraud do: with a call from a salesman.

In October 2006, a representative from a company called Home Loans Direct called Washington’s home and arranged an appointment to visit. Washington’s son Hobert, who was a

co-owner of the house, had already signed the mortgage separately, without Lillie Mae's knowledge. Hobert Washington was suffering from Alzheimer's, and his "cognitive impairment would have been immediately visible and obvious to anyone who spoke and interacted with him," according to court documents. Hobert had incontinence problems, an eye that bulged out of its socket, and fell frequently, says his brother, Bobby Washington.

Hobert "invited the lenders into her home," Abdallah says. "The son suffered from Alzheimer's, so he wasn't in the best of shape to be giving advice or counseling his mother. They sat down and offered her a loan that she probably shouldn't have taken and was filled with representations that aren't accurate."

According to court filings, the salesman came to Washington's house and promised that she could get a fixed-rate loan at "about 6 percent," pay "no more than \$700 a month," and even get \$80,000 for repairs. He said the payments would not start for six months. Washington signed on the dotted line.

According to legal documents, the loan agent had Washington sign a standard mortgage form without even showing her key documents that outlined information on how much she was borrowing, how much interest she'd be paying, and how much her payments would be.

Perhaps Washington was foolish to rely on the salesman's verbal representations, but federal law is clear. It requires that disclosures about mortgage terms be made "clearly and conspicuously," "grouped together," "in writing," and "in a form the consumer may keep," all "before consummation of the transaction." Washington alleges that the disclosures made to her failed to meet many of those conditions.

Home Loans Direct, the company that allegedly sold Washington the mortgage, no longer has a real estate license. It surrendered the license in 2008 during a state investigation, according to records from the California Department of Real Estate. In addition, one of the company's officers, Jorge Ricardo Cruz, had his license suspended and later revoked. A California Department of Real Estate document [PDF] obtained by Mother Jones explains that Home Loans Direct surrendered its license after deciding not to contest allegations that it:

knowingly advertised, printed, displayed, published, distributed, or caused or permitted to be advertised, printed, displayed, published, distributed, statements or representations with regard to the rates, terms, or conditions for making, purchasing, or negotiating loans on real property which were false, misleading, or deceptive.

The Home Loans Direct salesman promised to send copies of the mortgage documents to Washington after she signed. But when Washington's son Bobby called the firm to follow up, he got two unsigned notes in the mail, promising that the Washingtons would be able to "recast the loan to a more comfortable payment" in six months and that "everything will be alright."

Needless to say, the loan wasn't what Lillie Mae thought it was. That November, Lillie Mae and Bobby were celebrating Thanksgiving with family upstate when a call came in from Hobert's ex-

wife, who was caring for him. “She said, ‘Sit down,’” Bobby recalled. “‘Your payment is due next month and it’s \$2,582.29.’ It ruined the whole weekend.”

When the Washingtons finally received copies of the loan paperwork in late November, they realized they’d been screwed. The interest rate was actually over 9 percent, and the loan was adjustable—later, the rate would climb to nearly 12 percent. The Washingtons would get \$95,909.25 in cash out, significantly more than the \$80,000 they had been promised. The final loan documents also included a form from a notary attesting that Hobert and his mother had appeared before her together. Washington says she never saw a notary and has never been to Hacienda Heights, where the notary was registered. (Attempts to locate the notary were unsuccessful.)

“They came and took advantage,” Bobby says. “They played this game of lies.”

Most of the defense lawyers involved with the case didn’t return calls and emails asking for their clients’ side of the story. Brent Kramer, who represents Ocwen and several other defendants, referred me to the documents available in the case and otherwise declined comment.

Selling mortgages to low-income borrowers based on a misleading monthly payment was a common practice during the mortgage boom, says Prentiss Cox, a law professor at the University of Minnesota who is an expert in mortgage fraud. “Sales tactics were highly aggressive and the terms of the loans were complex and confusing,” Cox says. “It was almost always someone coming to them, promising them lower monthly payments, and then giving them a mortgage that had hard-to-understand back-end costs. The monthly payment didn’t reflect the true long-term cost of the loan.”

The Washingtons, panicked and confused about their rights, searched high and low for a way out. Bobby, who worked in a nonlegal capacity at a big law firm in Los Angeles, asked his colleagues for help. Lillie Mae sent a letter to the mortgage company disputing the terms of the loan. In the meantime, the Washingtons decided to use the cash out to pay their mortgage bills.

Bobby’s coworkers told him he and Lillie Mae had at least 10 different federal and state causes of action. They passed his case on to another big downtown law firm, which took the case pro bono but didn’t actually file suit until September 2008. Meanwhile, things were only getting worse for the Washingtons. Ocwen denied a request to cancel the loan based on fraud at origination. The Washingtons continued to drain the cash-out money to pay their bills. In October 2009, the Washingtons ran out of money, and they stopped paying the loan. A month later, Hobert Washington was dead, and Lillie Mae was on the hook for the entire loan.

Lillie Mae and Bobby Washington want to stay in their home. “It’s not modern but it’s home,” she says. “You’ve got a roof over your head at least, got a yard you can go out in. I’m just trying to keep everything under control.”

**Mother Jones Example 3:** <https://www.motherjones.com/politics/2011/08/john-boehner-burning-tree-club-sexist-golf/>

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Sometime in the '50s, the story goes, a small plane ran into engine trouble over Bethesda, Maryland, and was forced to crash-land near the 18th hole of a bucolic golf club. Employees rushed to the scene, and—upon discovering that the pilot was a woman—had her “very gingerly and gallantly” removed from the grounds.

Three decades later, when a visiting head of state showed up at the same golf club with a complement of Secret Service agents, the lone woman among them couldn’t set foot on the property. In 1981, a new Supreme Court appointee with a love of golf and a 12 handicap—Sandra Day O’Connor—became the first justice not to be offered a membership. That same chivalry has since been extended to Ruth Bader Ginsburg and Sonia Sotomayor.

Honorary membership at Burning Tree Club is not to be sneezed at, seeing as how the initiation fee is north of \$75,000, plus another \$6,000 per year and tips for the caddie. Still, not all male Supreme Court justices in recent years have accepted the club’s offer, though Antonin Scalia did. So did presidents Franklin Roosevelt, Eisenhower, Kennedy, Johnson, Nixon, Ford, and George H.W. Bush. Indeed, according to an encyclopedic 2003 ESPN.com piece by Greg Garber, Ike was persuaded to run for office by fellow club members and subsequently “spent so much time at ‘The Tree’ that a hot line was installed between the White House and the pro shop.”

Barring some Americans from the clubhouse stems from the same part of the cortex as barring others from the lunch counter.

We were moved to take this detour into archaic Washington folkways because of June’s debt ceiling “golf summit” between President Obama and Speaker John Boehner, which, as some reporters noted, took place at the Andrews Air Force Base course because the president couldn’t very well play Boehner’s regular club—Burning Tree.

Deep breath. Okay. It is 2011. Boehner is the speaker of the House. The body that is supposed to, more than any other, represent the people—all the people—of the United States of America. Yet 91 years after women won the right to vote and 40 years after our mothers fought for more than token access to the levers of power, the signal the man second in line for the presidency intends to send to 51 percent of the nation, 40 percent of Republicans, and his own daughters is...well, we’re too ladylike to say.

And yes, intends: The optics of belonging to one of America’s last 24 boys-only golf clubs have been brought to Boehner’s attention many, many times before. Evidently, Neanderthal sexism is simply another thing he refuses to compromise on.

But don’t feel left out, guys: The speaker’s contempt is not confined to those of the female persuasion. From the glass ceiling to the debt ceiling, Boehner and the rest of the GOP brass are

not only ignoring the needs of the majority of Americans, they are actively flipping all of us the bird. And that is something new.

Back in the innocent days of yore—say, six months ago—a politician who did not at least lip-synch concern for the welfare of the American people in the event of an economic tailspin would have gotten a drubbing in the press and a talking-to from his caucus leader. Now? It's the caucus leader himself who brutally spells out the priorities: No. 1, says Senate Minority Leader Mitch McConnell, is ensuring that Obama is “a one-term president.” No. 2 is protecting “your [Republican] brand.” That's right—the reason to worry about a downturn that could kill millions of jobs and wipe out what's left of our retirement and housing values is that it might interfere with GOP positioning.

Which takes us back to golf. George W. Bush gave up the game after starting the Iraq War. Boehner's cohorts seem less worried about looking out of touch: Just in the past two years, the speaker's Freedom Project PAC has spent more than \$170,000 on golf, \$64,000 at the Naples, Florida, Ritz-Carlton alone!

It's worth noting here that Boehner doesn't come to this callousness by dint of entitlement—one of 12 siblings, he was the first in his family to go to college—which makes his constant gestures of fealty to elites all the more striking. His attire the night he told the nation that he was protecting “the jobs and savings of Americans” by setting us on the path to economic calamity? Navy blazer, oxford shirt, kelly-green tie. Preppy Handbook, anyone?

So, note to President Obama: golf summit, sure. But don't forget that barring some Americans from the clubhouse stems from the same part of the cortex as barring others from the lunch counter. The foundational impulse for both is that fairness matters less than power.

Boehner may be, as the president has said, “a good man who wants to do right by the country.” But it all depends, as a previous president might have noted, on what the definition of “the country” is. In today's Republican Party, that definition has shrunk to its narrowest point in at least half a century. And that, in the end, is John Boehner's true handicap.

Want to learn more about the debt ceiling fight? Read David Corn on the Obama administration's strategy, review our detailed, updated explainer on how we got to this point, and learn why Kevin Drum thinks the deal sucks. Still hungry? Andy Kroll has a great piece on what the deal means for our future.

**Reveal Example 1:** <https://revealnews.org/article/scientists-say-trumps-border-wall-would-devastate-wildlife-habitat/>

HIDALGO, Texas — Muddy handprints cover the rusty, iron posts on this section of border fence in far South Texas. The 18-foot-tall barrier, which runs between a national wildlife refuge and a local nature center, ends abruptly less than a mile down the road. Still, somebody clearly thought it was best to cross here.

“This is probably one of the most visible places they could have climbed,” Scott Nicol, co-chair of the Sierra Club’s Borderlands Campaign, said before snapping photos of the handprints. “I don’t know if they got caught or not, but they made it up and over for sure.”

There’s been a lot of debate about how effective the President George W. Bush-era barrier has been at keeping out illegal crossers and drug smugglers. Some data indicate the barriers have encouraged people to cross in places where there isn’t one. But the handprints show that a determined person can still easily scale it.

What the border fence has kept out instead, according to environmentalists, scientists and local officials, is wildlife. And the people who have spent decades acquiring and restoring border habitat say that if President Donald Trump makes good on his promise to turn the border fence into a continuous 40-foot concrete wall, the situation for wildlife along the border – one of the most biodiverse areas in North America – will only get worse.

Muddy handprints cover a section of border fence in far South Texas. Credit: Callie Richmond for The Texas Tribune Credit: Callie Richmond for The Texas Tribune

Right now, a mix of vehicle barriers and pedestrian fencing covers only about one-third of the nearly 2,000-mile U.S.-Mexico border. Even with all those gaps, experts say the barriers have made it harder for animals to find food, water and mates. Many of them, like jaguars, gray wolves and ocelots, are already endangered.

Aaron Flesch, a biologist at the University of Arizona, said most border animals are already squeezed into small, fragmented patches of habitat.

“If you just go and you cut movements off,” he said, “you can potentially destabilize these entire networks of population.”

Still, the impacts of the border fence on wildlife aren’t totally understood. That’s in large part because Congress let the U.S. Department of Homeland Security ignore all the environmental laws that would’ve required the agency to fully study how the barrier would affect wildlife.

Flesch and other scientists say the federal government also has made almost no research money available to support independent studies. Most of the studies that have been done are limited in scope, but their findings are pretty clear: Impeding animal movements puts them on a faster path to extinction.

Environmentalists and conservation groups say the border fence also has compromised the federal government's own efforts to protect those vulnerable species, pitting the U.S. Department of Homeland Security against the U.S. Fish and Wildlife Service. The latter agency bought large tracts of land along the border decades ago and turned them into national wildlife refuges.

A spokeswoman for the Fish and Wildlife Service said the agency is not studying the environmental impacts of the proposed border wall and referred the Tribune to Customs and Border Patrol. That agency told the Tribune that "at this point we don't have anything to share."

#### A fast-tracked fence

When you envision the U.S.-Mexico border, you might think of a barren, dusty desert. But it actually ranks among the most biodiverse places in North America – particularly the Rio Grande Valley in South Texas. The Valley is home to some of the last remaining tracts of sabal palm forest in the country – a lush, subtropical ecosystem that is prime habitat for an endangered wild cat called the ocelot.

Two major migratory bird paths also converge in the region, and several tropical bird species there can't be found anywhere else in the United States. More than 100 other endangered species may be impacted by construction of a wall along the U.S.-Mexico border, according to an analysis of U.S. Fish and Wildlife Service data.

A group of Wisconsinites on the lookout for birds and other wildlife at Resaca de la Palma State Park and World Birding Center in the Lower Rio Grande Valley. The region is one of the preeminent birding locales in the United States. Credit: Callie Richmond for The Texas Tribune  
Credit: Callie Richmond for The Texas Tribune

During his first presidential run, Barack Obama vowed to review Bush's directive to build the fence – which was still under construction when he took office – in part due to potential environmental impacts. That never happened, even after a presidential advisory committee urged him to study the issue before Homeland Security installed any more barrier segments.

Decades-old laws like the Endangered Species Act often tie up major federal projects for decades or thwart them altogether, but a 2005 security and immigration law that Congress passed gave Homeland Security Secretary Michael Chertoff the power to waive all those regulations – which he did in 2008.

The existing border fence went up in just a few years. That left scientists scrambling to measure the impacts themselves – racing to try to measure animal movements before the fence was installed so they could compare them with what happened afterward.

Because the wall went up so quickly, "We didn't have any good environmental studies of this area to establish a baseline," said Laura Huffman, director of the Nature Conservancy's Texas office. As a result, "it's hard to comment on where we are today. And there was a lot of concern about that."

### The studies

At the 18-foot pedestrian fence in Hidalgo, the posts are positioned less than 2 inches apart — far too narrow for even small critters to squeeze through. Flesch's research found that the fence also blocks the threatened pygmy owl, which can only fly a few feet above the ground.

The Nature Conservancy's Southmost Preserve in far South Texas is home to some of the last remaining stands of sabal palm forest in the country. The lush, subtropical ecosystem – prime habitat for endangered wild cats like the ocelot and jaguarundi – once flourished in the region but has been almost totally cleared for agriculture or urban development. Credit: Callie Richmond for The Texas Tribune Credit: Callie Richmond for The Texas Tribune

Jesse Lasky, a biologist at Penn State University who studied the impacts of the fence on mammals, reptiles and amphibians, found that the U.S.-Mexico barrier reduced the range for some species by as much as 75 percent. Impacts were particularly acute on smaller populations of wildlife that occur in more specialized habitats like the endangered jaguarundi — another small wild cat.

"Mountain lions, jaguars, bobcats, javelinas, (bighorn) sheep, deer, black bears – those animals often move far to find what they need," he said, adding that a hardened border wall like the one Trump is proposing would be "substantially more threatening."

Another study conducted in Arizona, published in 2014, used motion-sensitive cameras to monitor animal – and human – movement along the border. The researchers found that pumas and hog-nosed coons, or "coati," were more likely to appear in places without a barrier. But human crossers appeared in equal numbers whether there was a barrier or not.

At sunset, a Customs and Border Patrol agent places noisy, generator-powered floodlights along a levee that ties into a segment of border fence in Hidalgo, Texas. Credit: Callie Richmond for The Texas Tribune Credit: Callie Richmond for The Texas Tribune

Constant noise and traffic from Border Patrol and other law enforcement activity is another threat to border wildlife, studies found. Even in areas where gaps in the fence could allow animals to get through, there are wide-open gravel roads constantly patrolled by border agents. At dusk, agents often set up mobile, generator-powered floodlights. That activity has steadily increased as border enforcement budgets have soared.

Flesch, the Arizona biologist, says all the gaps in the fence have definitely lessened environmental impacts; that's especially true in Texas, where there is only 110 miles of it. Black bears, for example, have been able to continue their recent comeback in the Lone Star State after being hunted to near extinction, and even a few jaguars – more prevalent in Mexico – have been spotted in the United States in recent years.

Free movement of wildlife is especially important after droughts or natural disasters that can wipe out subpopulations, Flesch said.

“The only species we know that’s going to make it through the wall are people,” he added.

Credit: Emily Albracht Credit: Emily Albracht

### Competing agendas

For more than 70 years, state and federal government and conservation groups have been buying up land along the border to preserve habitat for endangered animals. Now, much of that same land is bisected by the border fence.

The section of the fence in Hidalgo is one of the clearest indications of those competing agendas. It sits on the edge of the Lower Rio Grande National Wildlife Refuge, located on land that the U.S. Fish and Wildlife Service bought some 40 years ago. That means it’s federal property – so it became an easy target decades later when the Department of Homeland Security was looking for land to build the border fence.

A section of border fence in Hidalgo, which runs between a national wildlife refuge and a local nature center, ends abruptly when federal land stops. The U.S. Fish and Wildlife started buying land along the U.S.-Mexico border more than 70 years ago to preserve habitat for threatened species. Now, much of that same land is bisected by the border fence. Credit: Callie Richmond for The Texas Tribune Credit: Callie Richmond for The Texas Tribune

In testimony to Congress in 2008, the former manager of that wildlife refuge, Ken Merritt, said the land “was thought of somewhat like low-hanging fruit.” That phrase had appeared in a Homeland Security PowerPoint presentation the previous year, referring to land the federal government already owned and therefore wouldn’t have to condemn to build the fence. (Merritt, who worked at the agency for 31 years, was forced into early retirement after refusing to sign off on the border fence plan.)

Ygnacio Garza, a former Brownsville mayor and chairman of the Texas Parks and Wildlife Commission, summed it up this way: “You’ve spent money to build this environmental corridor, and now you’re gonna go right through the middle of it and put up a wall.”

The parks and wildlife commission, which also has spent decades acquiring land along the border to protect habitat, rebelled against the Bush administration’s border fence plan, too. According to a 2008 report in the Austin American-Statesman, park commissioners voted to reject an offer from the federal government to donate \$105,000 to a nonprofit land trust in exchange for more than 2 acres of a state-owned wildlife management area where it wanted to build part of the fence.

“Construction of a border fence has impacts to fish and wildlife resources that could not adequately be compensated for by the offer of compensation,” a department staffer said at the time.

Ygnacio Garza, a former Brownsville mayor and chairman of the Texas Parks and Wildlife Commission, at his office in Brownsville, Texas. “You’ve spent money to build this

environmental corridor, and now you're gonna go right through the middle of it and put up a wall," he says. Credit: Callie Richmond for The Texas Tribune Credit: Callie Richmond for The Texas Tribune

But the state ultimately lost that battle. The federal government condemned the property, a Texas Parks and Wildlife Department spokesman said.

The federal government did do some things to try to help endangered species when it built the border fence, including rerouting some sections. At a segment near Brownsville that runs through a private nature preserve, there are small openings at the base of the fence every 500 feet or so meant to let small wild cats through – particularly the ocelot, whose numbers have dwindled to fewer than 100 in the United States.

Sonia Najera, grasslands manager for the Nature Conservancy, calls the openings "cat holes." They're the size of a piece of printer paper. She's never seen an animal actually use one.

How are cats, or any other animals, supposed to find them?

"That's a good question," Najera said.

A small opening at the base of the border fence in Brownsville is meant to let small, endangered wild cats like the ocelot through. The "cat holes," which are the size of a piece of printer paper, appear every 500 feet or so. Credit: Callie Richmond for The Texas Tribune Credit: Callie Richmond for The Texas Tribune

This story is a collaboration with The Texas Tribune.

Disclosure: The Nature Conservancy and Texas Parks and Wildlife Department have been financial supporters of The Texas Tribune. A complete list of Tribune donors and sponsors is available [here](#).

**Reveal Example 2:** <https://revealnews.org/article/hey-california-oklahoma-had-3-times-as-many-earthquakes-in-2014/>

Earthquakes are synonymous with California to most Americans, but West Coasters might be surprised to learn they're far from the new center of the seismic landscape in the United States.

Oklahoma recorded more than three times as many earthquakes as California in 2014 and remains well ahead in 2015. Data from the U.S. Geological Survey shows that Oklahoma had 562 earthquakes of magnitude 3.0 or greater in 2014; California had 180. As of Jan. 31, Oklahoma recorded 76 earthquakes of that magnitude, compared with California's 10.

According to the Advanced National Seismic System global catalog, in 2014, Oklahoma even beat Alaska, the nation's perennial leader in total earthquakes, though many small events in remote areas go unrecorded there.

In California, earthquakes always have been relatively common, but in Oklahoma, they were much more rare – at least until 2009.

Earthquakes magnitude 3.0 and higher, 2000 to Jan. 31, 2015 Scientists have long assumed that the rate of earthquakes in a given location was constant, but the rapid increase in seismic activity in places like Oklahoma is fundamentally altering how experts plan for seismic risk. The U.S. Geological Survey's current models of seismic hazards intentionally ignore quakes attributed to "induced seismicity." Play: 2000 – Jan. 2015 Play: 2000 – Jan. 2015 Sources: U.S. Geological Survey National Hazard Model, Northern California Earthquake Data Center and UC Berkeley Seismological Laboratory

And though Oklahoma has had the most dramatic increase in earthquakes, other states such as Kansas, Texas, Ohio and Colorado also are seeing more "induced seismicity" – earthquakes likely triggered by human activity.

So far, earthquakes have proven much more deadly on the West Coast. In California, 63 people were killed in the 1989 Loma Prieta quake, and about 60 died during the Northridge event in 1994. None of the recent Midwest quakes have resulted in deaths. But the changes in the Midwest are so significant that the country's top experts are being forced to fundamentally rethink their approach to seismic risk.

"A fundamental assumption of the old maps was that everything stays the same. Now we're challenged with the earthquakes rates varying with time," said William Ellsworth, a seismologist for the U.S. Geological Survey who is part of a group studying new ways to understand the hazards of induced earthquakes. "Everybody realized that this was an appropriate thing to do because they didn't know what to do."

Numerous studies agree that wastewater disposal from hydraulic fracturing, or fracking, is a major factor in increasing seismic activity.

Massive amounts of water, along with other fluids, are used in the fracking process to break rocks, release natural gas and push it to the surface. That water, along with brine pulled from those rocks, comes back to the surface and has to go somewhere. So drillers inject it into underground disposal wells. In Oklahoma, more than 50 billion gallons of wastewater went into disposal wells in 2013 alone, according to the Oklahoma Geological Survey. The fracking process itself also has been linked to earthquakes, though those generally have been smaller than those associated with wastewater disposal.

The areas facing new earthquakes share a significant burst of drilling activity and pre-existing geologic faults. Heavily drilled areas such as North Dakota's Bakken formation, which aren't located near faults, have not seen the same increase in earthquakes.

Earthquakes magnitude 3.0 and higher, 2000 to Jan. 31, 2015

Oklahoma had more than three times as many earthquakes of magnitude 3.0 and higher than California in 2014, but only occasional earthquakes reported before 2009.

Source: Northern California Earthquake Data Center and UC Berkeley Seismological Laboratory

The largest Midwest quake in recent years – a magnitude 5.7 – was centered near Prague, Oklahoma, on Nov. 5, 2011. The city of 2,400 people is about 2 miles east of the Wilzetta fault system, and in 2011, it had several active wastewater disposal wells nearby.

A 2013 article published in the journal Geology linked the Prague earthquake with wastewater injection wells. According to state records, six homes were destroyed and 20 sustained major damage. A chimney collapsed through the roof of one house, injuring the woman inside. (She's now suing two oil companies for her injuries. Both companies deny responsibility for triggering earthquakes.)

The Oklahoma Geological Survey said in a 2013 statement that the Prague earthquake sequence was most likely a natural occurrence. The agency's interim director, Richard Andrews, and top seismologist, Austin Holland, could not be reached for comment despite repeated attempts.

Although most people are familiar with earthquake magnitudes, seismologists pay more attention to the intensity of ground shaking in assessing and predicting the damage an earthquake might cause. The Prague earthquake generated shaking up to intensity VIII, which the U.S. Geological Survey says includes "considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures."

That means that similar ground shaking near an urban area such as Oklahoma City or the state's two major universities in Norman and Stillwater could cause extensive damage.

And seismologists say larger quakes in Oklahoma are certainly possible, though Ellsworth said there is more risk associated with frequent smaller earthquakes than rarer large ones.

“A 6 would surprise no one,” Ellsworth said. “You wouldn’t be shocked if a magnitude 7 were to occur.”

The U.S. Geological Survey’s current maps of seismic hazards intentionally ignore earthquakes believed to be influenced by human activities because the agency hasn’t known how to quantify the risk.

Now scientists and engineers are trying to find a way assess the potential hazard of these new earthquakes.

Building codes and insurance companies nationwide look to the geological survey to estimate the probability that a certain area will experience dangerous ground shaking as the result of earthquakes. Buildings can be designed to withstand even heavy shaking, but the costs to do so make it impractical in places that don’t have a history of earthquakes.

To determine which areas must meet that higher construction standard, a consortium of engineers, architects, construction manufacturers and other experts called the Building Seismic Safety Council uses the geological survey’s hazard models to develop recommended maps that eventually make their way into the building codes used by almost all local jurisdictions.

For decades, the risk for a given area was based on a 50-year period. But the latest wave of quakes challenges that thinking. As gas exploration and wastewater injection migrate into new areas, the earthquakes move as well. How should a building be insured that might be at risk for earthquakes for the next five years, but never after that? Or where there is currently no earthquake risk, but there might be in the future?

A U.S. Geological Survey team led by seismologist Mark Petersen is working on significant changes to the national hazard model to begin to address those questions. The team will propose several options for how to model earthquake risk in the next year, rather than over 50 years.

“It changes so rapidly that by the time it’s implemented, the seismicity patterns and rates have changed,” Petersen said.

But changes to local building codes won’t happen anytime soon. The seismic recommendations for building codes are updated every five years, and the Building Seismic Safety Council is poised to close the latest cycle at the end of February, using older geological survey data that doesn’t take into account the rash of new earthquakes. The soonest the new hazard models could be incorporated into the International Building Code is 2024, said Nico Luco, who represents the U.S. Geological Survey on the seismic council.

“It’s a very dynamic problem. It’s something that doesn’t fit well with the standard building code approach,” Luco said.

And changing the building code won’t address the biggest potential problem with induced earthquakes: the existing stock of buildings in areas that have never considered seismic risk.

“Your main issue is that you’re elevating the risk for everything that’s already there, and building codes don’t really do as much for that,” Luco said.

David Bonneville, a San Francisco structural engineer and chairman of a Building Seismic Safety Council committee on building code recommendations, said he doesn’t expect local governments to mandate changes on their own “unless something really bad happens.” If a larger quake “affected some small city in Oklahoma that has no seismic resistance at all, you can bet that will get people’s attention.”

Jim Greff, Prague’s city manager, said he and many other residents still haven’t gotten around to fixing all the cracks in their drywall, but the city isn’t yet considering action on its own to change its building codes.

“I still think it’s a low-risk hazard compared to a tornado coming through and doing a lot of damage compared to a big earthquake,” he said.

Greff said he’s not sure whether wastewater injection near the faults is responsible for the earthquakes. He’s looking to the state’s Corporation Commission and geological survey to make that determination.

“They’ve been injecting wastewater for way more many years than we’ve had earthquakes. Why is it all starting now, I don’t know,” he said.

In fact, injection at one of the wells near Prague had been going on for 17 years before the 2011 earthquake, the Geology article noted. Although most cases of induced seismicity begin soon after wastewater injection starts, the authors theorized that the cumulative injection over time finally crossed a critical pressure threshold that caused the nearby fault to slip.

The Oklahoma Corporation Commission regulates oil and gas production and wastewater disposal in the state and has shut down 19 disposal wells since 2013 due to concerns about earthquakes, said Matt Skinner, the commission’s spokesman.

The commission has not officially acknowledged that disposal wells have caused specific earthquakes in Oklahoma.

Skinner said his agency is aware that induced seismicity in general is real and accepts that seismologists agree that wastewater disposal is the primary concern. So the agency is working with the Oklahoma Geological Survey to regulate well operators in new ways to address the increase in earthquakes.

New wastewater wells that are within a 6-mile radius of the epicenter of an earthquake magnitude 4.0 or higher must operate under a “yellow light” permit that allows the commission to immediately stop injection if more earthquakes occur. One such “yellow light” well near the Kansas border was shut down Tuesday after a magnitude 4.1 quake, the Tulsa World reported.

“This is a constantly evolving program,” Skinner said. “None of this is to be viewed in any way as, ‘Oh, look, we have an answer.’ It’s not.”

Correction: A previous version of this story misstated David Bonneville’s job. He is a structural engineer.

This story was edited by Jennifer LaFleur and Robert Salladay and copy edited by Nikki Frick.

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**Reveal Example 3:** <https://revealnews.org/article/who-is-the-wet-prince-of-bel-air-here-are-the-likely-culprits/>

Los Angeles officials have steadfastly refused to identify the Wet Prince of Bel Air, the homeowner who pumped an astonishing 11.8 million gallons of water during a single year of California's crippling drought.

The city said naming water-wasting customers wasn't in the public interest, even after Reveal from The Center for Investigative Reporting found last fall that 100 residents of wealthy neighborhoods on the Westside of L.A. were pumping millions of gallons of water apiece, drought or no. And one household in Bel Air was using enough water for 90 families.

So we decided to figure it out ourselves. The hard way. Using satellite images, an algorithm developed to track drought and deforestation, and equations used in landscape planning, we identified seven of the most likely culprits.

Call these mega-water users Bel Air's wet princes and princesses. The estimates aren't precise enough to pinpoint one specific estate as the worst. But, not surprising considering the neighborhood, this thirsty group includes some of the wealthiest people in L.A., and they live in some of the city's most expensive homes.

Their collective offenses on the water-guzzling front: fountains, swimming pools, an artificial waterfall, acres of lawn, subtropical landscaping, thousands of flowers, dozens of bathrooms.

The mega-users broke no laws, because the city's Department of Water and Power allows ratepayers to pump as much water as they can pay for. But a new state law will subject mega-water users to hefty fines in future drought emergencies.

At the top of our list of water-pumping royalty based on our analysis:

Former Univision CEO Jerry Perenchio, owner of the 42-room French-style chateau from TV's "The Beverly Hillbillies." His compound of lawns, formal gardens, woodlands and vineyards would require at least 6.1 million gallons of water per year.

Investment banker and onetime telecommunications tycoon Gary Winnick, owner of the 28,000-square-foot "Bellagio House" near the Bel-Air Country Club. The grounds, famous for floral gardens, require at least 4.6 million gallons per year.

Movie producer Peter Guber, who is also part-owner of the Golden State Warriors and the Los Angeles Dodgers. His wooded estate on a ridge above the Hotel Bel-Air needs at least 2.8 million gallons per year.

Other Bel Air mega-users, according to the analysis:

Wal-Mart heiress Nancy Walton Laurie, at least 2.3 million gallons per year;

Former Warner Bros. Chairman Robert Daly, at least 2.1 million;

Beny Alagem, owner of the Beverly Hilton Hotel, at least 2 million;

And soap opera producer Bradley Bell and his wife, U.S. Ambassador to Hungary Colleen Bell, at least 2 million.

Most of the mega-users declined to comment or failed to respond. But two acknowledged their high use and said they were trying to do better.

Daly said that since 2014 he had cut water use by 35 percent on his estate, tearing out lawns and employing other conservation measures. “I am very conscious of it,” he said of his water use.

After receiving our email, Alagem, the hotel owner, hired a landscaping company to reduce water usage significantly, said spokeswoman Marie Garvey.

Here are details on big water users in Bel Air:

#### The ‘Beverly Hillbillies’ mansion, Nimes Road

Owner: Trusts controlled by Jerrold Perenchio, who is among L.A.’s wealthiest men and biggest political contributors. A onetime Hollywood talent agent, he produced hit movies (“Blade Runner”) and television shows (“All in the Family”), then built Spanish-language Univision into the nation’s fifth-largest TV network. Today he is worth \$2.7 billion, according to Forbes magazine.

Public records show Perenchio has made more than \$45 million in political donations, giving millions to California governors Gray Davis and Arnold Schwarzenegger and to Republican Party strategist Karl Rove’s PAC. Recently he gave more than \$2 million to a super PAC supporting Republican presidential candidate Carly Fiorina.

House: The 21,500-square-foot French-style chateau has 10 bedrooms and 12 baths, according to the Zillow real estate website. Beneath it is an “underground motor court” for 30 cars, according to the Los Angeles Times. The mansion’s compound contains a helipad and several other homes, one with four bedrooms and 7,900 square feet of living space. The house’s facade and gardens were the backdrop for television’s “Beverly Hillbillies” comedy.

Grounds: About 13 acres with a tree-lined drive, pool, tennis court, fountain and extensive formal gardens. The biggest lawn covers about a quarter of an acre, aerial photos indicate. Half an acre is planted in vineyards.

Water use: Between 6.1 million and 12.3 million gallons per year, according to our estimates.

Perenchio didn’t respond to an email describing our findings. When we called in April, a Perenchio assistant said, “We don’t comment on anything.” A satellite photo shot in July showed

that some of Perenchio's lawns had turned brown since the spring, suggesting a decrease in irrigation.

#### Casa Encantada, Bellagio Road

Owner: A corporation is listed, but investment banker Gary Winnick is registered to vote there and is identified in news accounts as the house's owner.

A former co-worker of junk bond king Michael Milken at the Drexel Burnham Lambert investment bank, Winnick later set up his own bank, now called Winnick & Co. In 1997, he founded Global Crossing Ltd., which hoped to link the U.S. to the world with undersea fiber optic cables. In 1999, the Los Angeles Business Journal said Winnick was the richest person in the city. But Global Crossing collapsed in 2002, and Winnick helped pay a \$324 million legal settlement to investors and employees who claimed fraud.

House: A 64-room Georgian mansion also known as "Bellagio House," it is the former home of hotelier Conrad Hilton. The mansion is perhaps "the finest home west of the Mississippi," the Los Angeles Times once wrote. Built in 1938 and extensively renovated in the 1990s, it has seven bedrooms, 20 baths, a pool house, a 15-car garage and a grand terrace with fountain. In 2000, it sold for \$94 million; it was reportedly listed in 2013 for \$225 million, but went unsold.

Grounds: About 8 acres on a hill above the Bel-Air Country Club. In the 1990s, it was abloom with 40,000 flowers, the L.A. Times wrote. There's also a pool, tennis and basketball courts and a putting green. From the air, its lawns appear significantly greener than the nearby golf course fairways.

Water use: Between 4.6 million and 9.3 million gallons of water per year.

Winnick did not respond to an email and follow-up phone call.

#### Lausanne Road compound

Owner: Trusts associated with film and sports impresario Howard Peter Guber. CEO of Mandalay Entertainment, he produced "The Color Purple," "Batman" and other hit films. With Magic Johnson and other investors he bought the baseball Dodgers out of bankruptcy. As co-owner of the Warriors, he has pushed to move the basketball team from Oakland to San Francisco.

House: The former residence of actress Mary Tyler Moore, it has four bedrooms and 14,000 square feet of interior space. Also on the property is the 2,700-square-foot "Yoga House," a studio for Guber's wife, Tara.

Grounds: About 9 wooded acres with a pool, tennis court and private footpath to the Hotel Bel-Air in the canyon below. Architectural Digest in 2013 described the property's grounds as "jungly," featuring "lush ferns, clouds of jasmine and trumpet vine, and much more subtropical vegetation."

Water use: Between 2.8 million and 5.5 million gallons of water per year.

In response to an email, a Guber spokesman telephoned and asked for details of our findings. He offered no comment.

#### Strada Vecchia house

Owner: A trust for Nancy Walton Laurie, an heiress to the Wal-Mart fortune. Forbes magazine puts her net worth at \$4.5 billion. She and her husband are the former owners of the St. Louis Blues professional hockey team. They also own a Missouri bank, an 18,000-square-foot mansion near Las Vegas and a “super yacht” that the Daily Mail says is worth \$200 million.

House: Six bedrooms, four baths and 8,500 square feet of interior space, according to Zillow. Built in 1958, it sold in 2001 for \$20 million.

Grounds: About 5 acres with a pool, tennis court and half-acre lawn surrounded by trees. The house is adjacent to the controversial “Starship Enterprise” house, a 30,000-square-foot “giga-mansion” that developer Mohamed Hadid is building, to the distress of his neighbors. Laurie sued Hadid for damaging one of her eucalyptus trees during construction. Other neighbors, including actress Jennifer Aniston, also have complained about the project.

Water use: Between 2.3 million and 4.6 million gallons of water per year.

A lawyer for Laurie didn’t respond to an email and phone calls.

#### Bellagio Road mansion

Owners: Robert Daly, former chairman of both Warner Brothers and the Los Angeles Dodgers, and songwriter Carole Bayer Sager (“That’s What Friends are For”), winner of both a Grammy and an Academy Award.

House: A Georgian-style mansion with 11 bedrooms, eight baths and 11,600 square feet of interior space, according to Zillow, it has a 500-foot-long driveway and views of both the city and the Pacific Ocean. In 1998, at the height of the Monica Lewinsky scandal, President Bill Clinton attended a fundraiser at the house, and singer Barbra Streisand gave a “passionate defense” of the embattled president, the San Francisco Chronicle reported.

Grounds: The house is on a heavily wooded, 4-acre hilltop with a pool shaped like a half-moon. A central lawn covers about half an acre.

Water use: Between 2.1 million and 4.2 million gallons per year.

In an interview, Daly said he pays close attention to water use, which he estimated at about 4 million gallons per year. “I have been a responsible person,” he said. “I can’t help the fact that I own a lot of property.”

As the drought worsened, Daly said he has replaced lawns with artificial turf and pebbles. Since 2014, he said, his usage has dropped 35 percent.

#### Bel Air Road mega-mansion

Owner: A corporation associated with entrepreneur Beny Alagem, a founder of Packard Bell computers and owner of the Beverly Hilton. Alagem is building a new hotel, the Beverly Hills Waldorf Astoria, next door to the Beverly Hilton.

House: The 45,000-square-foot mansion, designed by famed architect Robert A.M. Stern and built in 2006, is the 49th-largest house in the U.S., according to the World Heritage Encyclopedia.

Grounds: About 3 acres with three fountains, an oval swimming pool, formal gardens and a lawn measuring nearly half an acre.

Water use: Between 2 million and 4 million gallons per year.

Alagem's spokeswoman said he is stepping up his conservation efforts. "We take your report very seriously," she said in a phone interview.

#### North Carolwood Drive compound

Owners: Soap opera producer Bradley Bell and Colleen Bell, Democratic Party fund-raiser and U.S. ambassador to Hungary. Bradley Bell is executive producer of "The Bold and the Beautiful," perhaps the world's most popular daytime TV drama. Colleen Bell is a former TV producer who raised \$600,000 for President Obama's re-election campaign, records show. Obama attended a 2012 fundraiser at their home and later named Colleen Bell ambassador to Hungary. Republicans opposed the nomination, saying she had little knowledge of Hungary.

House: The 10-bedroom Spanish Colonial Revival mansion was featured on the cover of the 2008 book "The Legendary Estates of Beverly Hills." Built in 1926 for a silent film actor, it was the home of rock star Rod Stewart in the 1980s.

Grounds: The 5-acre hilltop property incorporates the former estate of actor Gregory Peck, although Peck's home has been razed. The compound features a tree-lined lawn, palm trees, formal gardens and what Architectural Digest called "the estate's pièce de résistance": an artificial waterfall that in three sections cascades down a steep hillside.

Water use: Landscaping would need between 2 million and 3.9 million gallons of water per year, according to estimates. The estimate doesn't account for the waterfall.

Through a spokeswoman, Bradley Bell declined to comment.

#### How and why we did it

Despite a wet winter that eased the five-year drought, California still faces the prospect of water shortages. That's why the issue of excessive residential water use is important.

"Outdoor use of drinking water can be one of the most wasteful practices there is," said Tracy Quinn, policy analyst at the Natural Resources Defense Council. There's no good reason for allowing homeowners to pump unlimited amounts, she said.

In the original story in October 2015, we reported that the 25 biggest known residential water users in the state were in wealthy neighborhoods of Los Angeles' Westside.

Bel Air, an enclave of wealth and celebrity, was the home not just of the state's largest known residential water customer, but of four of California's top five. Over a 12-month period ending April 1, 2015, their usage ranged from 7.4 million to 11.8 million gallons per year. An ordinary California family uses about 132,000 gallons per year.

Citing privacy concerns, the city refused to make their names public. At the same time, the city's tough water conservation law imposes hefty fines for such minor offenses as watering lawns on the wrong day of the week and publicizes the names of those violators.

The story prompted outrage in and outside Los Angeles. One group of residents took up what Los Angeles Times columnist Steve Lopez called a "drought posse" to roam Bel Air's roads looking for the elusive Wet Prince. Their grassroots effort was in vain.

Instead it took a few fancy digital tools, and quite a bit of math, to sleuth it out.

We began by identifying large properties in Bel Air where landscaping is exceptionally lush and green. That's one sign of heavy water use.

To do that, we obtained from the U.S. Department of Agriculture specialized aerial photographs of the area shot on May 14 and 15, 2014, the most recent available at high resolution. The images were multispectral, meaning they depict light from wavelengths invisible to the human eye.

To identify individual properties, we overlaid a Bel Air real estate parcel map. ATTOM Data Solutions, a real estate data service, provided us with property ownership information.

Then we used an algorithm called the Normalized Difference Vegetation Index, or NDVI, to single out those properties where plant life was particularly healthy.

Scientists use NDVI calculations to assess the density of the earth's green vegetation. The index measures a side effect of photosynthesis: Healthy plants typically reflect more near-infrared light than red light compared to plants that are drought-stressed.

We then calculated the median NDVI for each parcel in Bel Air, noting big properties with particularly lush landscaping. We subtracted the footprints of buildings to make sure we measured only the landscaped area, not the entire lot.

We weren't satisfied with just one measurement so we used a second technique to pinpoint heavy irrigation: the relative wetness of the soil. This technique, called the "tasseled cap transformation," was developed by scientists to track the moisture levels of soils from space. We used multispectral photographs taken between the dates used in the original Wet Prince story – April 1, 2014, and April 1, 2015 – by NASA's Landsat 8 satellite to compute what's known as a median "tasseled cap wetness" value for each Bel Air parcel.

Combined, that information allowed us to zero in on the biggest Bel Air estates that scored highest for both healthy vegetation and especially wet soil. But different types of landscaping require different amounts of water to stay green, so we still couldn't tell how much water was being used on those properties.

Fortunately, horticultural experts have developed a way to deal with that problem. The Simplified Landscape Irrigation Demand Estimation – known as SLIDE – takes into account that grass, for example, requires more water than woody shrubs.

We used mapping software to measure the area of each property that was devoted to grass, trees or shrubs that appeared to require irrigation. Then we put each area through the SLIDE Rules, if you'll pardon the creators' pun, to estimate the minimum and maximum amounts of water needed to irrigate the property. These estimates do not include water pumped for swimming pools, fountains or household use.

We knew this was a novel use for these different technologies and calculations – one borne of necessity since L.A. city officials wouldn't help us out. So we ran it by three experts in remote sensing – that's analyzing data from aerial images. They all said what we did checked out.

"It sounds like your methodology is doing what you want to do and makes sense," said Laurence Carstensen, head of the geography department at Virginia Tech. "And obviously you've got scientific basis for the amount of water needed for this land cover."

This story was edited by Andrew Donohue and copy edited by Stephanie Rice.

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